

Aura Liaison Progress Report: **Odin/SMR**

Odin: launched Feb 2001 into 600-km, sun-synchronous orbit with ascending node at 18:00.

❖ **SubMillimetre Radiometer (SMR):**

- ❖ Instrument consists of one fix-tuned receiver at 119 GHz and four tunable receivers covering the ranges 486–504 GHz and 541–580 GHz; a closed Stirling-cycle cooler is used to cool amplifiers and mixers down to ~ 100 K.
- ❖ Two-year minimum planned lifetime; mission extended to March 2004 with possibility for further extension — thus there is a “good chance” for overlap with Aura.
- ❖ Routine products (standard mode):
 - ❖ O_3 , ClO , N_2O , HNO_3 .
 - ❖ Maximum vertical range: 7–70 km, vertical resolution 2–3 km.
 - ❖ Data coverage: 1 day out of 3 (because of time sharing with astronomy mission).
- ❖ Isotopic mode:
 - ❖ H_2O , HDO , $H_2^{18}O$, H_2O_2 , O_3 , $^{18}O_3$, $^{17}O_3$.
 - ❖ Maximum vertical range: 7–110 km, vertical resolution 2–3 km.
 - ❖ Non-simultaneous measurements.
 - ❖ Data coverage: 1 day out of 5 at best (on average).
- ❖ Other modes:
 - ❖ CO .
 - ❖ Maximum vertical range: 18–80 km, vertical resolution 2–3 km.
 - ❖ Data coverage: 1 day out of 5 at best (on average).

Aura Liaison Progress Report: **Odin/OSIRIS**

- ❖ **Optical Spectrograph and InfraRed Imaging System (OSIRIS)** — <http://osirus.usask.ca>
- ❖ Instrument has channels in the UV/Vis (280–800 nm, to measure scattered sunlight and airglow) and IR (two at 1.27 μm , one at 1.53 μm , to measure airglow).
- ❖ OSIRIS data essentially co-located with those of SMR.
- ❖ Two-year minimum planned lifetime; mission extended to March 2004 with possibility for further extension — thus there is a “good chance” for overlap with Aura.
- ❖ Routine products and their range/resolution/quality (per E.J. Llewellyn):
 - ❖ **Stratospheric O₃**: vertical resolution 2 km, horizontal resolution 500 km; accuracy typically better than 10%, precision typically better than 1% up to 50 km.
 - ❖ **Mesospheric O₃**: vertical resolution 1 km, horizontal structure identified with a resolution better than 100 km; accuracy TBD, precision typically better than 1%.
 - ❖ **NO₂**: vertical range 12–40 km, vertical resolution 2 km, horizontal resolution 500 km.
 - ❖ **Aerosol extinction**: same as NO₂.
- ❖ **BrO** also recently retrieved; **OCIO** now being worked on.
- ❖ Data coverage: atmosphere observed every third day (because of time sharing with astronomy mission), from October until February in the southern hemisphere and during the rest of the year in the northern hemisphere.
- ❖ Other campaign modes to support Aura validation may be possible.
- ❖ Although Odin data are not openly available, collaboration should be possible; protocol requires formal request for data to the Odin Science Team (+ offer of Odin co-authorship).